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EXAMINER

KAPADIA, MILAN S

ART UNIT

PAPER NUMBER

3626

DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/302,154

Applicant(s)

PEDNAULT, EDWIN PETER  
DAWSON

Examiner

Milan S Kapadia

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

*Notice to Applicant*

1. This communication is in response to the amendment filed 28 May 2003. Claims 1-20 are pending. Claims 1-4 have been amended. Claims 6-20 are newly added.

*Claim Rejections - 35 USC §101*

2. The rejection of the claims 1-5 under 35 U.S.C. 101 as being directed to non-statutory subject matter is hereby withdrawn due to the response filed 05/28/03.

*Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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4. Claims 19 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Apte et al. (5,970,464).

(A) As per claim 19, Apte discloses a method of at least one of managing and providing consultation for financial decisions, said method comprising at least one of generating, transmitting, receiving, and forwarding a report executed by a computer, said computer having executed a program of instructions (Apte; col. 3, lines 2-5; note the kernel is software which may be written in C++, therefore are program instructions executable by the machine ) to perform method steps for constructing segmentation-based models that satisfy constraints on the statistical properties of the segments, the methods steps comprising:

(1) presenting a collection of training data records comprising examples of input values that are available to the model together with the corresponding desired output value(s) that the model is intended to predict; (Apte; col. 3, lines 20-33 and col. 4, lines 17-27; the examiner interprets "data in data warehouse" as "input values that are available to the model" and "pure premium characteristics" as "desired output values that the model is intended to predict" )

(2) based on said training data, automatically generating on said computer, a plurality of segment models, that together comprise an overall model, wherein each segment model is associated with a specific segment of the training data (Apte; col. 4, lines 17-27), the

step of generating comprising performing optimization steps  
comprising:

- a) generating alternate training data segments and associated segment models; (Apte; col. 4, lines 33-40)
- b) evaluating at least one generated segment to determine whether it satisfies at least one statistical constraint (Apte; col. 4, lines 28-33; the examiner interprets “ actual pure premium” as a “statistical constraint.” ) ; and
- c) selecting a final plurality of segment models and associated segments from among the alternates evaluated that satisfy at least one of said statistical constraints (Apte; col. 4, lines 33-36; The examiner interprets “fine tuning the eligibility criteria for the product, until the segments that that are dragging the overall costs down are satisfactorily removed” as “selecting a final plurality of segments that have satisfactory evaluations.”)

(B) As per claim 20, Apte teaches wherein said model relates to an insurance risk model, said at least one statistical constraint comprises an actuarial credibility constraint, and said financial decision relates to at least one of a price structure for insurance policies and a policyholder profitability.

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Apte et al (5,970,464) in view of Simoudis et al. (5,692,107).

(A) As per claim 1, Apte discloses a computer implemented system comprising program instructions executable by the machine (Apte; col. 3, lines 2-5; note the kernel is software which may be written in C++, therefore are program instructions executable by the machine ) to perform method steps for constructing segmentation-based models that satisfy constraints on the statistical properties of the segments, the methods steps comprising:

(1) presenting a collection of training data records comprising examples of input values that are available to the model together with the corresponding desired output value(s) that the model is intended to predict; (Apte; col. 3, lines 20-33 and col. 4, lines 17-27; the examiner interprets "data in data warehouse" as "input values

that are available to the model” and “pure premium characteristics” as “desired output values that the model is intended to predict” )

(2) generating on the basis of the training data a plurality of segment models, that together comprise an overall model, wherein each segment model is associated with a specific segment of the training data (Apte; col. 4, lines 17-27), the step of generating comprising performing optimization steps comprising:

- a) generating alternate training data segments and associated segment models; (Apte; col. 4, lines 33-40)
- b) evaluating at least one generated segment to determine whether it satisfies at least one statistical constraint (Apte; col. 4, lines 28-33; the examiner interprets “ actual pure premium” as a “statistical constraint.” ) ; and
- c) selecting a final plurality of segment models and associated segments from among the alternates evaluated that satisfy at least one of said statistical constraints (Apte; col. 4, lines 33-36; The examiner interprets “fine tuning the eligibility criteria for the product, until the segments that that are dragging the overall costs

down are satisfactorily removed” as “selecting a final plurality of segments that have satisfactory evaluations.”)

Apte fails to expressly disclose “a program storage device readable by a machine, tangibly embodying a program of instructions” in the preamble. However, this feature is old and well known in the art as evidenced by Simoudis’s teachings with regards to a program storage device readable by a machine, tangibly embodying a program of instructions (Simoudis; col. 3, line 49-col. 4, line 15). It is respectfully submitted, that it would have been obvious to one having ordinary skill in the art at the time the invention was made to expand Apte’s computer-implemented method of underwriting profitability analysis to include this limitation, as taught by Simoudis, with the motivation of providing means for storage and retrieval of program data and instruction to be used at a later time.

(B) As per claim 2, Apte discloses a computer implemented system comprising program of instructions executable by the machine (Apte; col. 3, lines 2-5; note the kernel is software which may be written in C++, therefore are program of instructions executable by the machine ) to perform method steps for constructing segmentation-based models that satisfy constraints on the statistical properties of the segments, the methods steps comprising:

- (1) presenting a collection of training data records comprising examples of input values that are available to the model together with the corresponding desired output value(s) that the model is



intended to predict (Apte; col. 3, lines 20-33 and col. 4, lines 17-27; the examiner interprets “data in data warehouse” as “input values that are available to the model” and “pure premium characteristics” as “desired output values that the model is intended to predict”);

(2) generating, on the basis of the training data a plurality of segment models, that together comprise an overall model, wherein each segment model is associated with a specific segment of the training data (Apte; col. 4, lines 17-27), the step of generating comprising performing optimization steps comprising:

- a) generating alternate training data segments and associated segment models using statistical constraints to guide the construction of the data segments in a closed-loop fashion so as to ensure that the resulting data segments satisfy the statistical constraints; (Apte; col. 4, lines 28-39; The examiner interprets “actual pure premiums” as a “statistical constraint.” The examiner also interprets the generating as being done in “a closed loop fashion,” because the statistical constraint, “actual pure premium,” is part of the eligibility criteria which is

evaluated and then used to regulate the construction of potential segments (Apte; col. 4, lines 8-16)

- b) selecting a final plurality of segment models and associated segments from among the alternates generated (Apte; col. 4, lines 33-36; The examiner interprets “fine tuning the eligibility criteria for the product, until the segments that that are dragging the overall costs down are satisfactorily removed” as “selecting a final plurality of segments from among the alternates generated.”)

Apte fails to expressly disclose “a program storage device readable by a machine, tangibly embodying a program of instructions” in the preamble. However, this feature is old and well known in the art as evidenced by Simoudis’s teachings with regards to a program storage device readable by a machine, tangibly embodying a program of instructions (Simoudis; col. 3, line 49-col. 4, line 15). It is respectfully submitted, that it would have been obvious to one having ordinary skill in the art at the time the invention was made to expand Apte’s computer-implemented method of underwriting profitability analysis to include this limitation, as taught by Simoudis, with the motivation of providing means for storage and retrieval of program data and instruction to be used at a later time.

(C) As per claim 3, Apte discloses a computer implemented system comprising

program instructions executable by the machine (Apte; col. 3, lines 2-5 and col. 4, lines 17-27; note the kernel is software which may be written in C++, therefore are program instructions executable by the machine ) to perform method steps for constructing segmentation-based models that satisfy constraints on the statistical properties of the segments, the methods steps comprising:

- (1) presenting a collection of training data records comprising examples of input values that are available to the model together with the corresponding desired output value(s) that the model is intended to predict; (Apte; col. 3, lines 20-33 and col. 4, lines 17-27; the examiner interprets “data in data warehouse” as “input values that are available to the model” and “pure premium characteristics” as “desired output values that the model is intended to predict”)
- (2) generating, on the basis of the training data a plurality of segment models, that together comprise an overall model, wherein each segment model is associated with a specific segment of the training data (Apte; col. 4, lines 17-27), the step of generating comprising performing optimization steps comprising:
  - a) generating alternate training data segments and associated segment models; (Apte; col. 4, lines 33-40)

- b) adjusting the alternate pluralities so that the resulting data segments satisfy the statistical constraints (Apte; col. 4, lines 28-39; The examiner interprets “actual pure premiums” as a “statistical constraint” and “fine tuning” as a form of “adjusting”)

Apte fails to expressly disclose “a program storage device readable by a machine, tangibly embodying a program of instructions” in the preamble. However, this feature is old and well known in the art as evidenced by Simoudis’s teachings with regards to a program storage device readable by a machine, tangibly embodying a program of instructions (Simoudis; col. 3, line 49-col. 4, line 15). It is respectfully submitted, that it would have been obvious to one having ordinary skill in the art at the time the invention was made to expand Apte’s computer-implemented method of underwriting profitability analysis to include this limitation, as taught by Simoudis, with the motivation of providing means for storage and retrieval of program data and instruction to be used at a later time.

(D) As per claim 4, Apte discloses a computer implemented system comprising program instructions executable by the machine (Apte; col. 3, lines 2-5; note the kernel is software which may be written in C++, therefore are program instructions executable by the machine ) to perform method steps for constructing segmentation-based models of insurance risks, the methods steps comprising:

(1) presenting a collection of training data comprising examples of historical policy and claims data; (Apte; col. 3, lines 6-19)

(2) generating on the basis of the training data a plurality of segment models, that together comprise an overall model, wherein each segment model is associated with a specific segment of the training data (Apte; col. 4, lines 17-27), the step of generating comprising performing optimization steps comprising:

- a) generating alternative pluralities of segment models; (Apte; col. 4, lines 33-40)
- b) comparing said alternative pluralities of segment models using statistical likelihood scores based on statistic models of insurance risk, (Apte; col. 4, lines 28-33; The examiner interprets “estimated pure premiums” as forms of “statistical likelihood scores based on statistical models of insurance risk” )
- c) selecting a final plurality of segment models and associated segments from among the alternates generated so as to optimize aggregate statistical likelihood scores for the plurality (Apte; col. 4, lines 33-36; The examiner interprets “fine tuning the eligibility

criteria for the product, until the segments that that are dragging the overall costs down are satisfactorily removed” as “selecting a final plurality of segments form among the alternates generated as to optimize aggregate statistical likelihood scores for the plurality.”)

Apte fails to expressly disclose “a program storage device readable by a machine, tangibly embodying a program of instructions” in the preamble and fails to expressly disclose the alternative pluralities of segment models are generated in one of a top-down fashion and a bottom-up fashion. However, this feature is old and well known in the art as evidenced by Simoudis’s teachings with regards to a program storage device readable by a machine, tangibly embodying a program of instructions (Simoudis; col. 3, line 49-col. 4, line 15) and generating alternative pluralities of segment models in one of a top-down fashion and a bottom-up fashion (Simoudis; abstract). It is respectfully submitted, that it would have been obvious to one having ordinary skill in the art at the time the invention was made to expand Apte’s computer-implemented method of underwriting profitability analysis to include these limitations, as taught by Simoudis, with the motivation of creating reliable predictive models using data mining across multiple and diverse databases (Simoudis; col. 2, lines 1-3).

(E) As per claim 5, Apte teaches wherein said evaluating at least one generated segment to determine whether it satisfies at least one statistical constraint comprises:

performing a test whose outcome is not equivalent to a comparison between, on the one hand, the number of training records of at least one species of training records belonging to the segment and, on the other hand, a numerical quantity that may depend on the combination of species of training records being considered but that is otherwise constant for all generated segments that are evaluated (Apte; col. 4, lines 28-40; the examiner interprets the "what-if scenario analysis" as a from of "test whose outcome is not equivalent to a comparison between, on the one hand, the number of training records of at least one species of training records belonging to the segment and, on the other hand, a numerical quantity that may depend on the combination of species of training records being considered but that is otherwise constant for all generated segments that are evaluated.")

(F) As per claims 6, 9, and 10, Apte teaches wherein said statistical constraint comprises at least one constraint on a statistical estimation error of the corresponding segment model (Apte; col. 3, line 60-col. 4, line 7).

(G) As per claim 7, Apte teaches wherein said model relates to an insurance risk model and said at least one statistical constraint comprises an actuarial credibility constraint (Apte; col. 1, lines 53-59, col. 3, lines 35-53, and col. 3, line 60-col. 4, line 7).

(H) As per claim 8, Apte teaches wherein each said generated segment is evaluated using a statistical constraint based on a threshold calculated for that generated

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segment on statistical properties of claim amounts in said generated segment (Apte; col. 3, lines 35-53 and col. 4, lines 28-47).

(I) As per claims 11-13, Apte teaches wherein said generating alternate training data segments and segment models comprises splitting larger data segments into smaller data segments (Apte; col. 4, lines 17-27).

(J) As per claim 14, Apte discloses an apparatus comprising:

(1) a receiver to receive a collection of training data records comprising examples of input values that are available to the model together with the corresponding desired output value(s) that the model is intended to predict; (Apte; col. 3, lines 20-33 and col. 4, lines 17-27; the examiner interprets "data in data warehouse" as "input values that are available to the model" and "pure premium characteristics" as "desired output values that the model is intended to predict" )

(2) a calculator to generate, on the basis of the training data a plurality of segment models, that together comprise an overall model, wherein each segment model is associated with a specific segment of the training data (Apte; col. 4, lines 17-27), the step of generating comprising performing optimization steps comprising:



- a) generating alternate training data segments and associated segment models; (Apte; col. 4, lines 33-40)
- b) evaluating at least one generated segment to determine whether it satisfies at least one statistical constraint (Apte; col. 4, lines 28-33; the examiner interprets “ actual pure premium” as a “statistical constraint.” ) ; and
- c) selecting a final plurality of segment models and associated segments from among the alternates evaluated that satisfy said statistical constraints (Apte; col. 4, lines 33-36; The examiner interprets “fine tuning the eligibility criteria for the product, until the segments that that are dragging the overall costs down are satisfactorily removed” as “selecting a final plurality of segments that have satisfactory evaluations.”)

(K) As per claim 15, Apte teaches wherein said model relates to an insurance risk model and said at least one statistical constraint comprises an actuarial credibility constraint (Apte; col. 1, lines 53-60, col. 3, line 60-col. 4, line 7, and col. 4, lines 28-40).

(L) Method claims 16-18 repeat the subject matter of system claims 1, 6, and 7, as a series of steps rather than a set of apparatus elements. As the underlying structure of claims 1, 6, and 7 has been shown to be fully disclosed by the teachings of Apte and

Simoudis in the above rejections of claims 1, 6, and 7, it is readily apparent that the system disclosed by Apte and Simoudis include the steps to perform these functions. As such, these limitations are rejected for the same reasons given above for system claims 1, 6, and 7, and incorporated herein.

### ***Response to Arguments***

7. Applicant's arguments filed 5/28/03 have been fully considered but they are not persuasive. Applicant's arguments will be addressed herein below in the order in which they appear in the response filed 5/28/03.

(A) At pages 14-17 of the 5/28/03 response, Applicant argues that "the present invention provides a technique analogous to a closed loop, as explained briefly in lines 20-25 of page 33, by applying statistical constraints as an integral part of the method for splitting larger segments into smaller segments." In response, it is noted that the features upon which applicant relies (i.e., closed loop and applying statistical constraints as an integral part of the splitting larger segments into smaller segments) are not recited in the rejected claim (s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 998 F.2d 1181, 26 USPQ2d 1057 (Fed Cir. 1993). Therefore, it is respectfully submitted, that the Examiner's interpretation of "evaluating at least one generated segment to determine whether it satisfies at least one statistical constraint" as presently claimed is not improper.

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Furthermore, it is respectfully submitted, that the Applicant has misinterpreted the teachings of Apte. On page 15 of the 5/28/03 response, the Applicant states that Apte clearly intends the meaning of "actual pure premium" to be the "estimated quarterly pure premium = 700." The Examiner respectfully notes that Apte in fact equates "actual pure premium" to "quarterly premium of \$350" and equates "prediction of pure premium" to "estimated quarterly pure premiums=\$700" (Apte; col. 3, line 60-col. 4, line 7). As such, the Examiner maintains that Apte teaches the recited features and Applicant's position is unclear.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


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1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Milan S Kapadia whose telephone number is 703-305-3887. The examiner can normally be reached on Monday through Friday, 8:30 A.M. to 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Thomas can be reached on 703-305-9588. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

  
mk  
July 31, 2003

  
JOSEPH THOMAS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600